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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/914,868	08/19/97	BJORNARD	E 07041/106001

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MM11/1116

EXAMINER

CHANG, A

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 11/16/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/914868

Applicant(s)

BJORNARD et al.

Examiner

A. Chang

Group Art Unit

2872

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on August 21, 1998.
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-5, 7-15, 17-22, 31-49 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 9-10, 19-22, 31-32, 38-39 is/are allowed.
- ☒ Claim(s) 1-5, 7, 8, 11-15, 17-18, 33-34, 40, 43-48 is/are rejected.
- ☒ Claim(s) 35-37, 41-42 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 7
- ☐ Notice of References Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

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DETAILED ACTION

Remark

1. This Office Action is in response to applicant's amendment filed on August 21, 1998 which has been entered as paper number 8.
2. By this amendment, claims 1, 7-8, 14-15, and 17 have been amended, claims 6, 16 and 23-30 have been canceled and claims 33-49 have been newly added by the applicant. Claims 1-5, 7-15, 17-22 and 31-49 remain pending in this application.

Response to Amendment

3. The amendment of claim 8 appears to be in error and does not comply with the requirement of 37 C.F.R. 1.121 where the bracket to the amended feature, introduced in the reissue application, is not properly kept.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 7 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: between the "two layers" of reactively sputtered material recited in the based claim and the first, second, third and fourth layers recited in dependent claims 7 and 17. This renders the scope of the claims unclear.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 40, and 43-47 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Austin (PN. 5,147,125).

Austin teaches a multilayer anti-reflection coating comprising a second and a fourth layer made of DC reactive sputtered material, such as zinc oxide, having index of refraction of 1.9 at visible wavelength range, and a first and a third layer made of materials having refractive indices that are lower than the second and fourth layer, which may include silicon dioxide, (please see columns 9-10). With regard to claim 47, Austin teaches that the multilayer anti-reflection coating is a Rock system. With regard to claims 40, 43 and 45, Austin does not teach explicitly that the anti-reflection coating is to be provided on a plastic substrate however it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ2d 1647 (1987). This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-3, 8, 11-13, 18, 33-34, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Austin (PN. 5,147,125).

Austin teaches a multilayer anti-reflection coating comprising a second and a fourth layer made of DC reactive sputtered material, such as zinc oxide, having an index of refraction of 1.9, at visible wavelength range, and a first and a third layer made of materials having refractive indices that are lower than the second and fourth layer, which may include silicon dioxide, (please see columns 9-10). The refractive indices for the first and the third layers are also selected to be lower than the refractive index of the substrate. Austin teaches that the coating is provided on a substrate that is substantially optically transparent. It is known that any solid material is "temperature sensitive" in the sense that at certain temperature the properties of the solid material would change. But this reference does not teach explicitly that the substrate comprises a plastic material, however both glass and plastic are rather well known and suitable substrate materials in the art for optical article such as multilayer coating film, to replace the substrate of Austin by a plastic material would therefore have been obvious to one having ordinary skill in the art since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use is a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. Claims 4-5, 7, 14-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Austin as applied to claim 1 above, and further in view of the patent issued to Dickey et al (PN. 5,372,874).

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The multilayer anti-reflection coating taught by Austin as described for claim 1 above has met all the limitations of the claims with the exception that this reference does not teach explicitly that the DC reactive sputtered layer materials may also be tin oxide or tin-doped indium oxide. However, since both zinc oxide and tin oxide are known layer materials having similar refractive indices at visible wavelength range and may be deposited by DC reactive sputtering method, as demonstrated by Dickey et al, (please see column 2), it would have been obvious to one having ordinary skill in the art to replace the zinc oxide layer material by tin oxide layer material since they are art-recognized equivalents as layer materials for multilayer anti-reflection coating. Both Austin and Dickey et al references does not teach explicitly to use the tin-doped indium oxide as the layer material however such material is rather a well known layer material in the art and since the specification lacks the teachings of the criticality of having this particular layer material would solve any known problem in the prior art to use tin-doped indium oxide or zin oxide as the layer material is considered to be an obvious variation to one skilled in the art and it is merely an obvious matter of design choice.

With regard to claims 7 and 17, Austin teaches that the optical thickness for each of the layers in the multilayer anti-reflection coating is obtained via a triple-quarter design where the first layer has an optical thickness of a quarter wavelength and the sum of the third and fourth layers is also of a quarter wavelength. Austin however discloses an example with the second layer having an optical thickness of about a wavelength for a particular design having a particular optical property which is different from the claimed design in claims 7 and 17. Dickey et al in the same field of endeavor teaches an anti-reflection coating with the layer structure assumes the well-known Rock structure that reads on the structure limitations of the claims, (please see Figure 6 and column 6), It would then have been obvious to one having ordinary skill in the art to apply the teachings of Dickey et al to modify the structure of the coating of Austin for the benefit of obtaining

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desired transmission/reflection characteristics since it is well known in the art that the characteristics of the coating may be varied and tailored by varying the optical thickness of the layers.

Response to Arguments

11. Applicant's arguments with respect to claims 1-5, 7-8, 11-15, and 17-18 have been considered but are moot in view of the new ground(s) of rejection. The newly submitted claims 33-48 have been fully considered, out of which claims 33-34, 40, and 43-48 are rejected for the reasons stated above.

Allowable Subject Matter

12. Claims 9-10, 19-22, 31-32, and newly submitted claims 38-39 appear to be allowed over the prior art of the record.

13. Claims 35-37 and 41-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The reasons for indicated allowable subject matter are stated in the previous Office Action dated March 19, 1998.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

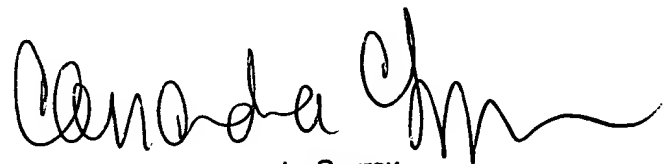
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Chang whose telephone number is (703) 305-6208.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4900.

Papers related to this application may be submitted to Group 2800 through facsimile transmission. Papers should be faxed to Group 2800 via PTO Fax Center (fax number 703-308-7722) located in Crystal Plaza 4.

A. Chang

November 12, 1998



Cassandra Spyrou
Supervisory Patent Examiner
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